UPGRADED COAL INTEREST GROUP

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Two great forces are reshaping the power generation industry, the Clean Air Act Amendment and deregulation of generation. The Clean Air Act Amendment is forcing change by making it necessary for power producers to plan for reducing emissions of sulfur and nitrogen oxides and possibly trace elements. At the same time, deregulation of generation is forcing utilities to focus their attention closely on the short term impact of any change on cost of power. Fuel is a utility's largest cost element; maximum fuel flexibility will be a utility's best weapon in an environment of rapid change. In a regulated environment, a utility was limited in how involved he might get into fuel supply - in a purely deregulated environment he need only be guided by the impact on the bottom line. The strategy for a particular utility is at least very complex, depending on its current conditions, however it is clear that these two forces will promote a close look at factors such as coal upgrading which can have an impact on the availability of low sulfur coal or emission of NOX and trace elements.

The time has arrived to cash in on the research and development effort that has been taking place in the United States in the fields of advanced coal upgrading largely under the leadership of the Department of Energy which will enable utilities to go into deregulation with maximum flexibility to meet CAA requirements.

At this time when the need is the greatest it seems as though the resources are most acutely challenged both in the Government and at EPRI. It was apparent to EPRI that a way to stretch limited resources would be to form a group which would be a partnership of EPRI, Federal and State Governments, process developers and related industries to maximize the benefit from the limited resources which were available, and to put the project "out in the field" with a minimum of distance between the researchers, developers and users. In 1993 EPRI put up seed funds for organization of an Upgraded Coal Interest Group (UCIG), which became a reality at the beginning of 1994.

UCIG's members include EPRI, DOE, Illinois Clean Coal Institute, a group of electric utilities, and a group of developer/vendor affiliates . The current members are listed on Figure 1.

The objectives of UCIG are to promote the availability of upgraded coal technologies and utilization of the products. The types of activities are shown on Figure 2.

Figure 3 shows the varied motivations for utility interest in upgraded coal, and Figure4 summarizes the way UCIG interacts with others.

UCIG has sponsored over $1.1 Million in projects with a wide range of industrial and university contractors which are listed on Figure 5. Figure 6 shows that UCIG plays several different roles in projects, from sponsoring specific small evaluations, participating as an industrial cosponsor, and stimulating others to action.

Figures 7 and 8 show some completed projects and work in progress.

UCIG projects are already leading to commercial projects as shown in Figure 9.

The 1998 membership campaign is open. Figure 10 lists the membership classes.

UCIG is a good example of technology transfer among government, EPR1 and industry. The initial success of UCIG also indicates that there is a real and growing utility market for new fuel related technologies.

FIGURES

Figure 1

1997 Members

Allegheny Power
Bechtel
Central Illinois P.S.
DOE
EPRI
ICCI
Illinois Power
GPU Genco (Penelec)
Potomac Electric Power
Southern Indiana E&G
TVA

Affiliates
CQ Inc.
EER
ExporTech
Penn State
U of Ky

Figure 2

UCIG Objectives

Promote the commercial availability of upgraded coal technologies, and promote the utilization of the products by conducting the following types of activities

- Analysis of the relevance of new technologies for the production and utilization of upgraded coals,
- Facilitate interactions among utilities, government, process developers, coal, engineering and financial companies
- Develop support for key projects which will promote commercialization of needed technologies
- Assessment of the impact of coal upgrading technology as a component of a Clean Air Compliance strategy
- Assessment of coal and waste products

Figure 3

Motivations for Utility Interest in Upgraded Coal

- Desire for low cost fuels
- Potential increased competition for low sulfur coal
- Delay, reduce or eliminate the need for post combustion control measures
- Business Opportunities
- Continue use of state or local coal

Figure 4

UCIG Activities

- Regular meetings
  - utility/vendor/government interactions
  - follow developments - facilitate technical transfer
- Outside presentations - lead to UCIG or member projects
- Sponsor use tests, research and engineering evaluations

Figure 5

UCIG Projects

- $1.1 Million of projects approved to date
- Contractors include :

Fossil Fuel Sciences	Indiana University
EER	SIGECO
CQ	EVA
Bechtel	CIPS
Exportech	ExporTech
Penn State	Adelphi University
U of Kentucky	

Figure 6

UCIG Roles in Projects

- Sponsor an evaluation
  - engineering evaluations
  - proof of concept
  - market evaluations
- Industry support of large DOE projects
  - ExporTech Mag Mill
  - Precombustion removal of HAPs
- Initiate projects to stimulate support by others (ICCI)
  - Quantify benefits of using upgraded coal
  - Cyclone slurry burn test

Figure 7

Completed Projects

- Survey of availability of cleaning plant fines
- Method for removing organic sulfur from waste fines
- Evaluation of slurry prep facilities, slurry reburn and cofiring in PC boilers
- Computer model for comparing fines transportation costs
- Reviews and engineering evaluations of new technologies
  - Chemical coal cleaning
  - LRC upgrading
  - Mag Mill
- Demonstration of slurry cofiring in a 33 MW Cyclone
- Utilization studies of waste coal in Illinois and Indiana
- HAPs content of slurry pond coals

Figure 8

Work in Progress

- Precombustion removal of HAPs
- Quantify benefits of of using upgraded coal at power plant
- Development of Mag Mill
- Coal/Sewage Sludge slurry fuel
- Large scale waste coal utilization
- Market for waste coal slurry fuel
- Advanced dewatering of fines slurries
- Slurry experience data base

Figure 9

Utility Derivative Projects Under Development

- Use of coal or waste coal pelletized with other wastes
- Waste coal slurry feed
- Mag Mill demonstration

Figure 10

Membership Classes

- Electric Utilities
- Vendor/contractor Affiliates
- Federal and State Governments

The 1998 Membership Season is Open